

***Lasiopetalum adenotrichum* (Malvaceae s. lat.), a new species from
Fitzgerald River National Park**

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Abstract

Meissner, R.A., Rathbone, D.A. & Wilkins, C.F. *Lasiopetalum adenotrichum* (Malvaceae s. lat.), a new species from Fitzgerald River National Park. *Nuytsia* 24: 65–69 (2014). The new species *Lasiopetalum adenotrichum* R.A.Meissn. & Rathbone is here described. It is a priority species for conservation in Western Australia and is endemic to Fitzgerald River National Park.

Introduction

During a recent Department of Parks and Wildlife survey of Fitzgerald River National Park in southwestern Australia (Rathbone 2013), several interesting specimens of *Lasiopetalum* Sm. were collected. Although initially identified as *L. discolor* Hook., due to the enlarged epicalyx bracts and compact dichasium, subsequent examination of these collections revealed morphological differences from *L. discolor*, namely glandular hairs present on the inflorescences and differing leaf morphology. An additional specimen was found at the Western Australian Herbarium (PERTH) amongst the collections of *L. discolor* (C.J. Robinson 1145) that matched the new specimens and location. These collections are formally recognised herein as a new species, *L. adenotrichum* R.A.Meissn. & Rathbone, which appears restricted to Fitzgerald River National Park, an important centre of biodiversity that is under threat of dieback (*Phytophthora* spp.) (Department of Parks and Wildlife 2013).

Methods

This research is based upon examination of collections at PERTH and field observations. Floral characters were scored from rehydrated specimens. Hair density is defined as ‘scattered’ when the hairs are well separated, ‘moderately dense’ when the hairs are just touching laterally, ‘dense’ when the hairs strongly overlap and the epidermis remains visible, and ‘tomentose’ when the hairs conceal the epidermis.

Taxonomy

Lasiopetalum adenotrichum R.A.Meissn. & Rathbone, *sp. nov.*

Type: Fitzgerald River National Park, Western Australia [precise locality withheld for conservation reasons], 12 October 2012, *D.A. Rathbone* DAR 982 (*holo*: PERTH 08471770; *iso*: AD, CANB, K, MEL, NSW).

Lasiopetalum sp. Fitzgerald (C.J. Robinson 1145), Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au> [accessed 20 January 2014].

Erect *shrub* 0.25–0.5(–1) m high, 0.25–1 m wide. *Stems* tomentose, with ferruginous, stellate hairs with 6–12 arms to 0.3 mm long, over smaller, stellate hairs and with or without scattered, inconspicuous, glandular hairs to 0.2 mm long; mature stems red-brown, glabrescent. *Stipules* absent. *Petioles* 5–20 mm long with hairs as per stem hairs. *Leaves* narrowly ovate to lanceolate, (3–)12–48 mm long, (2–)5–24 mm wide, base rounded or rounded-cordate, apex rounded to rounded-acute, discolorous; abaxial surface with scattered, ferruginous, stellate hairs over a tomentum of white, stellate hairs, both forms with *c.* 12 arms to 0.15 mm long; hairs turning grey with age; adaxial surface with scattered, white, glandular hairs to 0.15 mm long and dense, white and occasional, ferruginous, stellate hairs with *c.* 6 arms to 0.15 mm long, glabrescent; midrib depressed on upper surface, raised on lower surface. *Inflorescence* a compact dichasium of (4)5–7(8) flowers. *Peduncles* 6–12 mm long, tomentose, with ferruginous, stellate hairs and scattered, glandular hairs. *Pedicels* 0–1.5 mm long. *Bract* at base of pedicel, narrowly ovate to lanceolate, 3.1–7.5(–9.4) mm long, 0.8–2.5 mm wide. *Epicalyx* bracts 3, at base of calyx, narrowly ovate to lanceolate, fused at the base to 0.1 mm, the central lobe longer than the laterals, 4.6–10 mm long, 1–2.4 mm wide; abaxial surface with scattered, ferruginous, stellate hairs over dense, white to cream, stellate hairs with 12–16 arms to 0.4 mm long, and scattered to moderately dense, white, glandular hairs to 0.7 mm long, with white, pink or dark red tips; adaxial surface with dense, white, stellate hairs. *Calyx* white to cream, almost divided to the base with the tube 0.5–0.9 mm long and lobes 4.6–7.1 mm long, 1.4–1.8 mm wide; abaxial surface with dense, white, stellate hairs with 8–12 arms to 0.2 mm long, and scattered to moderately dense, white, glandular hairs to 0.3 mm long; adaxial surface glabrous except for scattered, stellate hairs towards the apex and margin and occasional to scattered, white, glandular hairs *c.* 0.1 mm long towards the base. *Petals* 5, dark red-purple, orbicular, 0.7–1.1 mm long, 0.7–1.4 mm wide, glabrous, margin entire. *Anthers* 5, glabrous, red-purple with white apex and apical pores, 1.4–2.3 mm long, 0.6–0.8 mm wide. *Filaments* 1.2–2 mm long, glabrous. *Ovary* 3-carpellate, 1.2–1.8 mm long, 1.1–2 mm wide; outer surface with dense, intermixed white, stellate and glandular hairs to 0.3 mm long. *Style* filiform, glabrous except for scattered, sessile, white, stellate hairs towards the base, 1.3–2 mm long. *Ovules* 2 per carpel. *Fruit* a loculicidal capsule 4.1–4.5 mm long, 2.6–3.4 mm wide; outer surface with dense, white, stellate hairs and glandular hairs. *Seed* narrowly ellipsoid, 2.8–3.2 mm long, 1.1–1.4 mm wide, exotesta brown, smooth, with scattered, white, stellate hairs; aril cream, 1.3–1.4 mm long. (Figure 1)

Diagnostic features. This species is characterised by its compact dichasium, with scattered to moderately dense, glandular hairs intermixed with the stellate hairs on the bracts, epicalyx, calyx and ovary.

Other specimens examined. WESTERNAUSTRALIA: [localities withheld for conservation reasons]: 14 Sep. 2011, *D.A. Rathbone* DAR 885 (PERTH); 15 Sep. 2011, *D.A. Rathbone* DAR 889 (PERTH); 16 Sep. 2011, *D.A. Rathbone* DAR 880 (PERTH); 22 Sep. 2011, *D.A. Rathbone* DAR 902 (PERTH); 23 Sep. 2011, *D.A. Rathbone* DAR 890 (PERTH); 25 Sep. 2011, *D.A. Rathbone* DAR 882 (PERTH);



Figure 1. *Lasiopetalum adenotrichum* R.A.Meissn. & Rathbone. A – typical coastal habitat in Fitzgerald River National Park; B – habit; C – leaves with a smooth surface and rounded-cordate base; D – inflorescence with visible red, glandular trichomes amongst stellate hairs. Photographs by D. Rathbone.

25 Sep. 2011, *D.A. Rathbone* DAR 883 (PERTH); 14 Sep. 2012, *D.A. Rathbone* DAR 956 (PERTH); 5 Oct. 2012, *D.A. Rathbone* DAR 981 (PERTH); 7 Oct. 2012, *D.A. Rathbone* DAR 898 (PERTH); 11 Oct. 2012, *D.A. Rathbone* DAR 893 (PERTH); 22 Nov. 2012, *D.A. Rathbone* DAR 983 (PERTH); 7 Sep. 1993, *C.J. Robinson* 1145 (PERTH).

Phenology. *Lasiopetalum adenotrichum* is recorded as flowering from September to November and fruiting from late spring to summer.

Distribution and habitat. *Lasiopetalum adenotrichum* is known only from scattered populations in Fitzgerald River National Park within the Esperance Plains bioregion (Department of the Environment

2013). The populations occur on the coast between Point Ann and Quoin Head and occasionally on the upper slopes and gullies of the central peaks of the Barren Ranges (Figure 2). It typically grows in shallow, loamy sand in moist coastal habitats, specifically on wave cut benches or low to moderately incised gullies (Figure 1A). In this habitat, it is associated with a low mallee heath of *Eucalyptus pleurocarpa* and *Banksia lemniiana* over *Melaleuca papillosa*, *Beaufortia schaueri*, *Leucopogon* sp. Twertup (K.R. Newbey 10859), *Hibbertia verrucosa*, *Isopogon* sp. Fitzgerald River (D.B. Foreman 813) and *Rhadinothamnus rudis* subsp. *amblycarpus*. On the upper slopes of the Barren Ranges it is found in montane heath of *Eucalyptus acies*, *E. preissiana* subsp. *preissiana*, *Banksia lemniiana* and *B. heliantha*.

Conservation status. *Lasiopetalum adenotrichum* is listed by Smith (2013) as Priority Two under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the name *L. sp. Fitzgerald* (C.J. Robinson 1145).

Etymology. The epithet is from the Greek *adenos* (gland) and *trichos* (hair), in reference to the presence of glandular hairs on the inflorescence and branchlets (Figure 1D).

Affinities. *Lasiopetalum adenotrichum* is closely allied to *L. discolor*, *L. compactum* S.Paust and

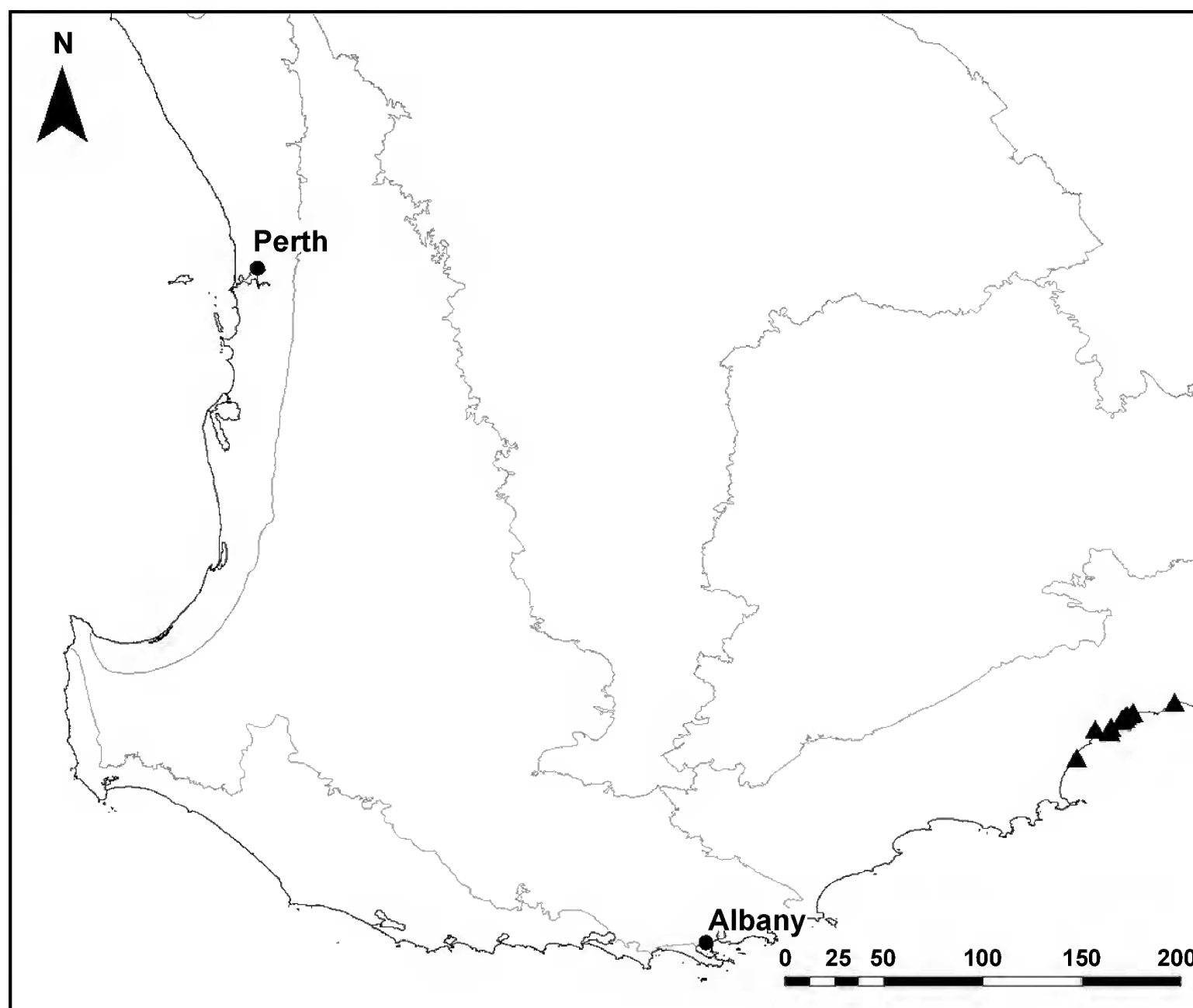


Figure 2. Distribution map for *Lasiopetalum adenotrichum* in Western Australia.

L. ferraricollinum E.M.Benn. & K.A.Sheph. all of which share compact, dichasial inflorescences. It is readily distinguished from these taxa by the presence of long, glandular hairs to 0.7 mm long on the young branchlets, peduncle, epicalyx bracts, calyx and ovary (Figure 1D).

In addition, *L. adenotrichum* differs from *L. compactum* and *L. ferraricollinum* in having the outer surface of the calyx with a much closer indumentum of stellate hairs (shorter arms to 0.4 mm long rather than to 1 mm long). Inconspicuous glandular hairs may be present on *L. compactum* and *L. ferraricollinum* but the hairs are shorter (to 0.1 mm) and both have leaves that are early glabrescent with the arms of stellate hairs 0.3 to 0.6 mm long. Furthermore, *L. ferraricollinum* is distinguished by its more waxy appearance.

Lasiopetalum adenotrichum and *L. discolor* share late-glabrescent leaves with stellate hairs (arms to 0.2 mm long) and large, basally fused epicalyx bracts. *Lasiopetalum adenotrichum* differs from *L. discolor* in having smooth leaves with an entire margin, rather than slightly rugose leaves with an undulate margin. *Lasiopetalum adenotrichum* also has leaf bases that are rounded or rounded-cordate rather than more truncate-cordate (Figure 1C).

Notes. The seed aril form corresponds to subtype 3b per Wilkins and Chappill (2002), which is characterised by a basal cap with two long lobes extending along the hilar margin, generally a third to half of the seed length.

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